GENE R. GEORGE & ASSOCIATES, INC.
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June 15, 2015

NSR Program Manager / attn: O&G Production Facilities Permit Application
Department of Environmental Quality
Air Quality Division
Herschler Building, 2-E
122 West 25th Street
Cheyenne, WY 82002

RE: Peak Powder River Resources, LLC
Chapter 6 Section 2 Air Quality Permit Application
Van Buggenum 1-2H

Dear Program Manager:

Enclosed are one hard copy and one electronic copy of the Air Quality Permit Application for the facility named above, prepared on behalf of our client Peak Powder River Resources, LLC who is requesting a waiver for this facility since there are no emission sources requiring control to meet the Presumptive BACT requirements described in the Chapter 6 Section 2 Oil and Gas Production Facilities Permitting Guidance (C6 S2 Guidance). This is a new single well production facility located in Campbell County, within the "Statewide Area" that is defined in the C6 S2 Guidance.

The First Date of Production per the definition in the C6 S2 Guidance was March 24, 2015, making this application due June 24, 2015. The application has been prepared in accordance with the September 2013 O&G Permitting Guidance.

Please contact me if additional information or clarification is needed.

Sincerely,

Cynthia Madison

Cynthia Madison
Project Engineer

Attachment
CD

Reviewer HMB
cc:
Modeler
D.E.
File A0001231
IMP FID 26910

STATE OF WYOMING
Department of Environmental Quality/Air Quality Division
C6 S2 Air Quality Permit Application

Peak Powder River Resources, LLC

Van Buggenum 1-2H

API 49-005-61581
Latitude: 43.737071 Longitude: -105.837423
SE SW Section 35, Township 44N, Range 75W
Campbell County, WY

ORIGINAL

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Process Description

The Van Buggenum 1-2H is a new horizontal well producing from the Shannon Formation. The well is located in Campbell County within the area specified as "Statewide" in the Chapter 6, Section 2 Oil and Gas Production Facilities Permitting Guidance (C6 S2 Guidance). The well is designated as Wildcat by the Wyoming Oil and Gas Conservation Commission

The well initially came on line on March 18, 2015 but did not produce consistently until March 24, 2015 therefore; for Air Quality permitting purposes the First Date of Production (FDOP) was March 24, 2015.

The well is produced by an electric pumping unit. Well fluids are routed into a high pressure 2-phase separator. Gas off the separator is metered and routed into a high pressure sales line. The fluids move on to a heater treater with a 0.5 million Btu per hour (MMBTU/HR) burner. The gas stream off the treater is metered and routed into the low pressure sales line. Oil and water are routed to four 400-barrel (BBL) oil tanks and one 400-BBL water tank and are eventually hauled away by truck for sales and disposal. Vapors from the oil tanks are collected and routed to a smokeless combustor for destruction of the volatile organic compound (VOC) and hazardous air pollutant (HAP) components. Because uncontrolled tank emissions are below the Presumptive BACT control level, the combustor may be removed. There is a dual head flare for flaring the produced gas during emergency or upset conditions.

An electric pump circulates oil from the storage tanks back through the production equipment if further treatment is necessary.

There are no pneumatic pumps or process controllers used at this location.

Presumptive BACT

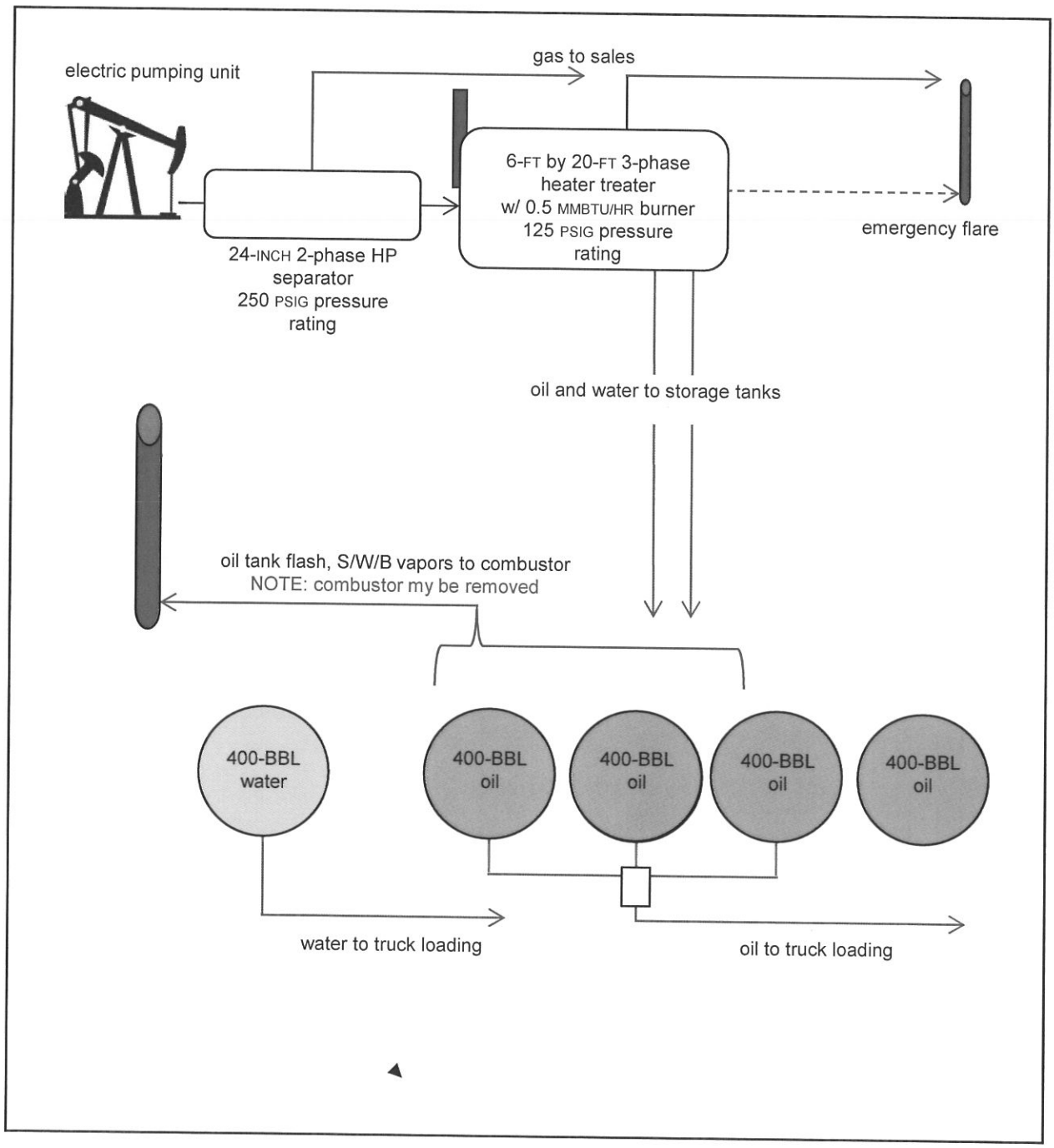
The sources at this facility that are affected by the Presumptive BACT requirements in the C6 S2 Guidance are the oil tanks. Within 60-days of the FDOP, flashing emissions containing greater than or equal to 10 tons per year (TPY) of VOC shall be controlled by at least 98%. Presumptive BACT requirements also include monitoring and recordkeeping which will demonstrate continuous and effective emission control.

Vapors from the tanks are collected and routed to a smokeless combustor which was in place upon startup of the facility. The combustor is designed to achieve greater than 99% destruction efficiency and is designed to be compliant with EPA NSPS 40 CFR Part 60, Subpart OOOO (see Pages 14-16). Operation of the combustor is continually recorded and monitored using a SCADA type system. Since the projected rate of VOC emissions from the tanks is less than 10 TPY, BACT requirements are met with no control and the combustor may be removed.

There are no pneumatic controllers or pumps and there are no other sources at this facility emitting ≥8 TPY of VOC or ≥5 TPY of hazardous air pollutants (HAP) that would require a BACT analysis to be filed with this application. All Presumptive BACT requirements specified in the C6 S2 Guidance for "Statewide Area" production facilities have been met.

Process Diagram
Van Buggenum 1-2H

Diagram does not represent actual scale or placement of equipment.



Emission Calculations

Flash & S/W/B

The API E&P TANK V2 model was used to estimate uncontrolled tank emissions. The model was run using the projected oil production rate and average hydrocarbon composition of Shannon oil from Peaks nearby wells (see Page 11). The text file generated by the model run is shown below.

```
**********************************************************************************************
*  Project Setup Information                                    *
**********************************************************************************************
Project File:
Flowsheet Selection:          Oil Tank with Separator
Calculation Method:           RVP Distillation
Control Efficiency:           0%
Known Separator Stream:       Low Pressure Oil
Entering Air Composition:     No

Filed Name:                   Peak Powder River Resources, LLC
Well Name:                    Van Buggenum 1-2H
Well ID:
Permit Number:                Air Quality Permit Application
Date:                         2015.06.11


**********************************************************************************************
*  Data Input                                                   *
**********************************************************************************************

Separator Pressure:           30.00 [psig]
Separator Temperature:        130.00 [F]
Ambient Pressure:             12.00 [psia]
Ambient Temperature:          50.00 [F]
C10+ SG:                      0.80365
C10+ MW:                      235.884

-- Low Pressure Oil ----------------------------------------------------------------------
 No.  Component               mol %
  1   H2S                     0.0000
  2   O2                      0.0000
  3   CO2                     0.0560
  4   N2                      0.0020
  5   C1                      0.8000
  6   C2                      0.3720
  7   C3                      1.3250
  8   i-C4                    0.6030
  9   n-C4                    2.0260
 10   i-C5                    1.0590
 11   n-C5                    1.4350
 12   C6                      1.1860
 13   C7                      5.2860
 14   C8                      13.6970
 15   C9                      8.7900
 16   C10+                    59.1820
 17   Benzene                 0.1340
 18   Toluene                 0.5860
 19   E-Benzene               0.1370
 20   Xylenes                 1.9760
 21   n-C6                    1.0400
 22   224Trimethylp           0.3090
```

-- Sales Oil ----------

Production Rate:	214 [bbl/day]
Days of Annual Operation:	365 [days/year]
API Gravity:	35.0
Reid Vapor Pressure:	7.80 [psia]

****

* Calculation Results *

****

-- Emission Summary ----------

Item	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
Total HAPs	0.090	0.021
Total HC	12.024	2.745
VOCs, C2+	7.069	1.614
VOCs, C3+	5.562	1.270

Uncontrolled Recovery Info.

Vapor	989.4800 x1E-3 [MSCFD]
HC Vapor	962.8100 x1E-3 [MSCFD]
GOR	4.62 [SCF/bbl]

-- Emission Composition ----------

No	Component	Uncontrolled [ton/yr]	Uncontrolled [lb/hr]
1	H2S	0.000	0.000
2	O2	0.000	0.000
3	CO2	0.519	0.118
4	N2	0.030	0.007
5	C1	4.954	1.131
6	C2	1.508	0.344
7	C3	2.557	0.584
8	i-C4	0.585	0.134
9	n-C4	1.370	0.313
10	i-C5	0.316	0.072
11	n-C5	0.312	0.071
12	C6	0.079	0.018
13	C7	0.125	0.029
14	C8	0.108	0.025
15	C9	0.024	0.005
16	C10+	0.000	0.000
17	Benzene	0.006	0.001
18	Toluene	0.008	0.002
19	E-Benzene	0.001	0.000
20	Xylenes	0.009	0.002
21	n-C6	0.055	0.013
22	224Trimethylp	0.007	0.002
	Total	12.573	2.871

-- Stream Data ----------

No.	Component	MW	LP Oil mol %	Flash Oil mol %	Sale Oil mol %	Flash Gas mol %	W&S Gas mol %	Total Emissions mol %
1	H2S	34.80	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2	O2	32.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	CO2	44.01	0.0560	0.0374	0.0374	2.4741	0.0000	2.4741
4	N2	28.01	0.0020	0.0003	0.0003	0.2212	0.0000	0.2212
5	C1	16.04	0.8000	0.3069	0.3069	64.8138	0.0000	64.8138
6	C2	30.07	0.3720	0.2938	0.2938	10.5226	0.0000	10.5226
7	C3	44.10	1.3250	1.2415	1.2415	12.1693	0.0000	12.1693
8	i-C4	58.12	0.6030	0.5914	0.5914	2.1107	0.0000	2.1107
9	n-C4	58.12	2.0260	2.0035	2.0035	4.9459	0.0000	4.9459
10	i-C5	72.15	1.0590	1.0601	1.0601	0.9196	0.0000	0.9196
11	n-C5	72.15	1.4350	1.4390	1.4390	0.9079	0.0000	0.9079
12	C6	86.16	1.1860	1.1936	1.1936	0.1982	0.0000	0.1982
13	C7	100.20	5.2860	5.3246	5.3246	0.2715	0.0000	0.2715

14 C8	114.23	13.6970	13.8008	13.8008	0.2041	0.0000	0.2041
15 C9	128.28	8.7900	8.8573	8.8573	0.0418	0.0000	0.0418
16 C10+	235.88	59.1820	59.6372	59.6372	0.0000	0.0000	0.0000
17 Benzene	78.11	0.1340	0.1349	0.1349	0.0170	0.0000	0.0170
18 Toluene	92.13	0.5860	0.5904	0.5904	0.0191	0.0000	0.0191
19 E-Benzene	106.17	0.1370	0.1380	0.1380	0.0014	0.0000	0.0014
20 Xylenes	106.17	1.9760	1.9911	1.9911	0.0168	0.0000	0.0168
21 n-C6	86.18	1.0400	1.0470	1.0470	0.1328	0.0000	0.1328
22 224Trimethylpentane	114.24	0.3090	0.3113	0.3113	0.0123	0.0000	0.0123
MW		180.12	181.31	181.31	26.39	0.00	26.39
Stream Mole Ratio		1.0000	0.9924	0.9924	0.0076	0.0000	0.0076
Heating Value [BTU/SCF]					1499.50	0.00	1499.50
Gas Gravity [Gas/Air]					0.91	0.00	0.91
Bubble Pt. @ 100 F [psia]	33.31	17.13	17.13				
RVP @ 100F [psia]	7.97	6.08	6.08				
Spec. Gravity @ 100 F	0.696	0.696	0.696				

Total Uncontrolled Tank Emissions **5.56 TPY VOC** and **0.09 TPY HAP**

Treater Burner

Fuel gas for the 0.5 MMBTU/HR heater treater burner comes from the well. Emissions were calculated using AP-42 emission factors (100 LB NO_X/MMCF and 84 LB CO/MMCF) and the average heat content of Shannon produced gas from Peaks nearby wells (see Page 12). For the purposes of this application, it is assumed the burner operates 8760 hours annually.

NO_X (TPY) = 0.5 MMBTU/HR (100 LB NO_X/MMCF)(1322 BTU/1020 BTU)(1 SCF/1020 BTU)(8760 HR/YR) (TON/2000 LB) = **0.28 TPY NO_X**

CO (TPY) = 0.5 MMBTU/HR (84 LB CO/MMCF)(1322 BTU/1020 BTU)(1 SCF/1020 BTU)(8760 HR/YR) (TON/2000 LB) = **0.23 TPY CO**

Fugitives

The typical component count for a Peak single well production facility, the fugitive emission factors provided in the C6 S2 Guidance and the corresponding weight percentages of VOC and HAP in the produced gas (see Page 12) were used to estimate fugitive emissions.

Emission Factors

Equipment Type	Gas	Light Oil	Water/Light Oil
	LB THC/DAY/component	LB THC/DAY/component	LB THC/DAY/component
Connector	0.0110	0.0110	0.0058
Flange	0.0210	0.0058	0.0002
Open line	0.1100	0.0740	0.0130
Other	0.4700	0.4000	0.7400
Pump	0.1300	0.6900	0.0013
Valve	0.2400	0.1300	0.0052

Component Count and Service Type

	No.	LB THC/DAY	TPY	No.	LB THC/DAY	TPY	No.	LB THC/DAY	TPY
Connector	30	0.3300	0.0602	60	0.6600	0.1204	30	0.1740	0.0317
Flange	10	0.2100	0.0383	20	0.1160	0.0212	10	0.0020	0.0004
Open line	0	0.0000	0.0000	0	0.0000	0.0000	0	0.0000	0.0000
Other	4	1.8800	0.3431	8	3.2000	1.1680	4	2.9600	0.5402
Pump	0	0.0000	0.0000	0	0	0	1	0.0013	0.0002
Valve	20	4.8000	0.8760	40	5.2000	0.9490	20	0.1040	0.0190
SUBTOTALS			1.32			2.26			0.59

Total THC = 4.17 TPY

4.17 TPY (33.551/100) = **1.40 TPY VOC**

4.47 TPY (2.206/100) = **0.10 TPY HAP**

Truck Loading

Truck loading emissions are estimated using the method described in the C6 S2 Guidance, the projected daily oil production rate and the oil tank vapor properties estimated by the E&P TANK Model (see Page 13).

projected BOPD ⟶ BBL/YR	214 * 365 = 78,110 BBL/YR	
saturation factor (submerged loading, normal svc.)	0.6	S
true vapor pressure of oil @ T = 50°F	2.3	P
molecular weight of tank vapors (LB/LB-MOL)	26.4141	M
temperature (°R)	510	T
VOC content of tank vapors	66.89 WT%	
HAP content of tank vapors	0.68 WT%	

LL = 12.46 * S * P * M/T = 12.46 * 0.6 * 2.3 * 26.4141/510 = 0.89 LB/1000 GAL
0.89 LB/1000 GAL loaded (42 GAL/BBL) (78,110 BBL/YR) (TON/2000 LB) = 1.46 TPY total losses

1.46 TPY (66.89/100) = **0.98 TPY VOC**

1.46 TPY (0.68/100) = **0.01 TPY HAP**

Emission Summary

Total Estimated Uncontrolled Emissions (Tons Per Year)

EMISSION SOURCE	VOCs	total HAPs	NO_X	CO	SO_2	H_2S
oil tanks	5.56	0.09				
burner			0.28	0.23		
fugitives	0.14	0.10				
truck loading	0.98	0.01				
TOTAL	6.68	0.10	0.28	0.23		

Total Estimated Controlled Emissions (Tons Per Year)

EMISSION SOURCE	VOCs	total HAPs	NO_X	CO	SO_2	H_2S

Hazardous Air Pollutants (TPY)

Complete this section for each emissions source if TOTAL HAPs from that source are 9 TPY or greater.					
SOURCE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Other

Production Record

Date	BOPD		BWPD
4/27/2015	171		174
4/26/2015	423		132
4/25/2015	318		119
4/24/2015	311		100
4/23/2015	299		96
4/22/2015	391		177
4/21/2015	293		197
4/20/2015	444		146
4/19/2015	530		107
4/18/2015	203		150
4/17/2015	374		161
4/16/2015	312		116
4/15/2015	496		161
4/14/2015	370		117
4/13/2015	398		131
4/12/2015	351		155
4/11/2015	446		150
4/10/2015	415		164
4/9/2015	289	Initial 30-day average	40
4/8/2015	305	= 356 BOPD	55
4/7/2015	473		101
4/6/2015	369		40
4/5/2015	266		120
4/4/2015	231	356 * 0.6	49
4/3/2015	202	= **214 BOPD projected**	39
4/2/2015	314		95
4/1/2015	395		148
3/31/2015	267		108
3/30/2015	409		200
3/29/2015	332		173
3/28/2015	379		218
3/27/2015	121		525
3/26/2015	314		72
3/25/2015	322		42
3/24/2015	761		364
3/23/2015	75		555
3/22/2015	0		0
3/21/2015	0		0
3/20/2015	151		1081
3/19/2015	213		1165
3/18/2015	267		0

SHANNON OIL

Components	IBERLIN 1-4H	PUMPKIN BUTTES 1-3H	PUMPKIN BUTTES 1-27H	ROUSH 1-21H	SPOMER 1-18H	ATWOOD LAUR 1-20H	LUKE 1-34H	Average Mole %
	Mole %	Mole %	Mole %	Mole %	Mole %	Mole %	Mole %	
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oxygen	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Carbon Dioxide	0.026	0.026	0.032	0.042	0.012	0.054	0.198	0.056
Nitrogen	0.003	0.001	0.001	0.001	0.001	0.001	0.006	0.002
Methane	0.313	0.285	0.507	1.180	0.189	1.139	1.984	0.800
Ethane	0.308	0.176	0.184	0.752	0.265	0.672	0.246	0.372
Propane	1.197	0.802	0.470	2.650	1.174	2.183	0.797	1.325
iso-Butane	0.692	0.597	0.378	0.742	0.398	0.598	0.816	0.603
n-Butane	2.803	2.071	0.782	2.416	1.590	2.633	1.884	2.026
iso-Pentane	1.352	1.135	0.687	1.020	0.916	1.052	1.248	1.059
n-Pentane	1.989	1.418	0.756	1.593	1.303	1.567	1.419	1.435
Hexanes	1.206	0.938	0.842	1.586	1.097	1.358	1.275	1.186
Heptanes	6.437	3.945	2.773	7.003	5.438	5.920	5.487	5.286
Octanes	13.152	11.631	11.158	17.410	16.021	14.586	11.924	13.697
Nonanes	8.715	8.487	7.304	9.695	9.240	9.714	8.377	8.790
Decanes+	57.191	64.618	71.857	47.615	57.838	54.469	60.687	59.182
Benzene.....	0.192	0.081	0.033	0.315	0.133	0.121	0.062	0.134
Toluene.....	0.670	0.472	0.189	0.923	0.586	0.574	0.690	0.586
Ethylbenzene.....	0.083	0.169	0.052	0.259	0.071	0.095	0.231	0.137
Xylenes.....	1.869	1.852	1.231	3.278	2.104	2.025	1.471	1.976
n-Hexane	1.442	1.007	0.636	1.117	1.296	0.868	0.917	1.040
2,2,4-Trimethylpentane...	0.360	0.289	0.128	0.403	0.328	0.371	0.281	0.309
Totals.....	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Temp F	128	146	140	120	150	108	112	129
Pressure PSIG	38	34	25	10	28	5	94	33
Date	2/14/2013	5/8/2013	6/24/2013	9/27/2013	4/4/2013	9/11/2013	3/20/2014	
API GRAVITY (sales oil)	38.4	34.6	31.6	36.8	38.2	37.5	28.2	35.043
SG OF C10+	0.79217	0.82177	0.82894	0.78459	0.80734	0.79603	0.79470	0.80365
AVERAGE MW Oil	185.409	194.194	207.783	152.645	181.031	165.617	186.783	181.923
AVERAGE MW of C10+	248.466904	243.839	247.485	210.736	236.265	220.695	243.698	235.884
SALES RVP	7.6	5.6	~~4.1~~	9.1	9.7	7.2	~~4.6~~	7.8

The gas gathering line pressures, which dictate the operating pressures of the treaters, variy widely in this production area. This is why pressures of the oil samples vary more than is normally seen for samples taken from a group of similar wells producing from one formation. Because the mol percent values for the components of the above samples are very similar, regardless of sample pressure, the calculated 'average analysis' is appropriate for use in modeling tank emissions from Peak's Shannon wells.
Note: The two lowest values for RVP of sales oil are excluded from the average.

SHANNON GAS

WELL	ATWOOD LAUR 1-20H	IBERLIN 1-4H	SPOMER 1-18H	PUMPKIN BUTTES 1-3H	PUMPKIN BUTTES 1-27H	ROUSH 1-21H	AVERAGE Mol%
Components	Mole %	Mole %	Mole %	Mole %	Mole %	Mole %	
Carbon Dioxide	1.302	1.383	0.984	1.657	1.998	1.393	1.453
Hydrogen Sulfide	0	0.000	0.000	0.000	0	0.000	0.000
Nitrogen	1.038	0.839	1.262	1.342	1.791	1.147	1.237
Methane	72.691	71.524	76.414	76.109	77.919	72.604	74.544
Ethane	10.095	10.198	7.839	6.308	4.907	9.381	8.121
Propane	9.221	9.830	7.618	8.475	6.529	9.208	8.480
iso-Butane	1.078	1.187	1.025	1.274	1.98	1.207	1.292
n-Butane	2.763	3.006	2.706	2.819	2.205	2.861	2.727
iso-Pentane	0.595	0.677	0.675	0.685	0.895	0.683	0.702
n-Pentane	0.608	0.693	0.703	0.618	0.702	0.695	0.670
Cyclopentane	0.026	0.022	0.025	0.023	0.034	0.007	0.023
n-Hexane	0.169	0.186	0.162	0.154	0.261	0.203	0.189
Cyclohexane	0.041	0.036	0.040	0.034	0.07	0.046	0.045
Other Hexanes	0.142	0.209	0.238	0.197	0.346	0.228	0.227
Heptanes	0.104	0.102	0.149	0.175	0.211	0.183	0.154
Methylcyclohexane	0.039	0.032	0.047	0.052	0.045	0.052	0.045
2,2,4-Trimethylpentane	0.013	0.018	0.018	0.023	0.027	0.030	0.022
Benzene	0.008	0.006	0.009	0.004	0.003	0.009	0.007
Toluene	0.019	0.008	0.023	0.008	0.009	0.023	0.015
Ethylbenzene	0.003	0.001	0.002	0.001	0.001	0.003	0.002
Xylenes	0.011	0.004	0.010	0.006	0.011	0.011	0.009
C8+ Heavies	0.034	0.039	0.051	0.036	0.056	0.026	0.040
Totals	100	100	100	100	100	100	100
sample temperature (°F)	50	128	150	146	140	50	
sample pressure (PSIG)	5	38	28	34	25	5	
molecular weight	23.283	23.747	22.635	22.927	22.800	23.578	23.162
BTU wet basis (BTU/SCF)	1335	1362	1305	1302	1280	1347	1322
sample date	8/30/2013	2/14/2013	3/27/2013	5/7/2013	6/20/2013	9/27/2013	

Components	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %	AVERAGE Weight %	
Carbon Dioxide	2.461	2.563	1.913	3.181	3.857	2.600	2.763	
Hydrogen Sulfide	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Nitrogen	1.249	0.990	1.562	1.640	2.201	1.363	1.501	
Methane	50.086	48.319	54.157	53.255	54.825	49.400	51.674	
Ethane	13.037	12.913	10.413	8.273	6.471	11.964	10.512	
Propane	17.464	18.253	14.840	16.300	12.627	17.221	16.118	
iso-Butane	2.691	2.905	2.632	3.230	5.047	2.975	3.247	
n-Butane	6.897	7.357	6.948	7.147	5.621	7.053	6.837	
iso-Pentane	1.844	2.057	2.152	2.156	2.832	2.090	2.188	
n-Pentane	1.884	2.106	2.241	1.945	2.221	2.127	2.087	
Cyclopentane	0.078	0.065	0.077	0.070	0.105	0.021	0.069	
n-Hexane	0.626	0.675	0.617	0.579	0.986	0.742	0.704	
Cyclohexane	0.148	0.128	0.149	0.125	0.258	0.164	0.162	
Other Hexanes	0.526	0.758	0.906	0.740	1.308	0.833	0.845	33.551 wt% VOC
Heptanes	0.448	0.430	0.660	0.765	0.927	0.778	0.668	
Methylcyclohexane	0.164	0.132	0.204	0.223	0.194	0.217	0.189	
2,2,4-Trimethylpentane	0.064	0.087	0.091	0.115	0.135	0.145	0.106	
Benzene	0.027	0.020	0.031	0.014	0.01	0.030	0.022	
Toluene	0.075	0.031	0.094	0.032	0.036	0.090	0.060	
Ethylbenzene	0.014	0.004	0.009	0.005	0.005	0.014	0.008	
Xylenes	0.050	0.018	0.047	0.028	0.051	0.050	0.041	
C8+ Heavies	0.167	0.188	0.257	0.179	0.281	0.126	0.200	
Totals	100	100	100	100	100	100	100	

BTEX Data

Components	Weight %	Weight %	Weight %	Weight %	Weight %	Weight %	AVERAGE Weight %	
Cyclopentane	0.078	0.065	0.077	0.070	0.105	0.021	0.069	
Cyclohexane	0.148	0.128	0.149	0.125	0.258	0.164	0.162	
2-Methylpentane	0.377	0.542	0.648	0.529	0.935	0.598	0.605	
3-Methylpentane	0.148	0.216	0.258	0.211	0.373	0.235	0.240	
n-Hexane	0.626	0.675	0.617	0.579	0.986	0.742	0.704	
Methylcyclohexane	0.164	0.132	0.204	0.223	0.194	0.217	0.189	
2,2,4-Trimethylpentane	0.064	0.087	0.091	0.115	0.135	0.145	0.106	2.206 wt% HAP
Benzene	0.027	0.020	0.031	0.014	0.01	0.030	0.022	
Toluene	0.075	0.031	0.094	0.032	0.036	0.090	0.060	
Ethylbenzene	0.014	0.004	0.009	0.005	0.005	0.014	0.008	
m-Xylene	0.006	0.002	0.005	0.003	0.006	0.006	0.005	
p-Xylene	0.036	0.013	0.034	0.020	0.037	0.035	0.029	
o-Xylene	0.009	0.003	0.008	0.005	0.009	0.008	0.007	

MOL% to WEIGHT% Conversion

Shannon Tank Vapors

from E&P TANK output

Composition of "Total Emissions" from E&P TANK

COMPONENT	mol %		M.W.	(mol % X MW)/100	WT% of i
H2S	0	composition of tank vapors from E&P TANK MODEL	34.08	0	0
O2	0		32.00	0	0.0000
CO2	2.4741		44.01	1.0889	0.0412
N2	0.2212		28.02	0.0620	0.0023
Methane C1	64.8138		16.04	10.3961	0.3936
Ethane C2	10.5226		30.07	3.1641	0.1198
Propane C3	12.1693		44.09	5.3654	0.2031
i-Butane i-C4	2.1107		58.12	1.2267	0.0464
n-Butane n-C4	4.9459		58.12	2.8746	0.1088
i-Pentane iC5	0.9196		72.15	0.6635	0.0251
n-Pentane nC5	0.9079		72.15	0.6550	0.0248
n-Hexane n-C6	0.1328		86.17	0.1144	0.0043
Cyclohexane	0		84.16	0.0000	0.0000
other Hexanes	0.1982		85.00	0.1685	0.0064
Heptanes	0.2715		100.20	0.2720	0.0103
Methylcyclohexane	0		98.18	0.0000	0.0000
2,2,4 Trimethylpentane	0.0123		114.22	0.0140	0.0005
Benzene	0.017		78.11	0.0133	0.0005
Toluene	0.0191		92.14	0.0176	0.0007
Ethylbenzene	0.0014		106.17	0.0015	0.0001
Xylenes	0.0168		106.17	0.0178	0.0007
C8	0.2041		120.00	0.2449	0.1957
C9	0.0418		128.26	0.0536	0.0414
C_{10}+	0		142.29	0.0000	0.0000
hydrogen	0		1.01	0.0000	0.0000
Helium	0		4.00	0.0000	0.0000
water	0		18.02	0.0000	0.0000
	100				1.2258

MOLECULAR WEIGHT (lb/lb-mol)=	26.4141
TOTAL VOCs WEIGHT PERCENT =	0.6689
TOTAL HAPs WEIGHT PERCENT =	0.0068

		Item/Tag No.:		Page	1	of	3
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		Project:		Date:	27 February 2014		
	Environmental Control Equipment Data Sheet			By:	JS		
		P.O. No.:	-	Checked:	SG		
		RFQ No.:	-	Approved:	MS		
	Client:	Ref. P&ID:	-				
	Site:			Supplier:	LEED FABRICATION		
	Unit/Lease:	Remarks:	-	Model No.:	L30-00XX		

GENERAL

1	Design Code:	NDE:	LEED Fabrication Standards
2	Service:	Customer Specs:	☐ Yes
3	Description:		☑ No

PROCESS DATA

	Gas Composition:	mol %
4	Methane	
5	Ethane	
6	Propane	
7	I-Butane	
8	n-Butane	
9	I-Pentane	
10	n-Pentane	
11	n-Hexane	
12	CO2	
13	N2	
14	Helium	
15	H_2O	
16	C7	
17	C8	
18	C9	
19	C10	
20	C11+	
21	TOTAL	

Process Conditions:		
Variable	Value	Units
Flow Rate		Mscfd
Pressure		psig
Temperature		°F
Molecular Weight		
Process/Waste Stream	☑ Gas ☐ Liquid	

Detailed Process Description / Process Notes:

1. Turndown 10:1. Based on an expected normal operating rate indicated above.
2. DRE: 98 % operating at design conditions
3. Burner Pressure Drop: Min. 0.10 oz/in2

	Other Components:	PPMV
22	H2S	
23	Benzene	
24	Toluene	
25	E-Benzene	
26	Xylene	

Available Utilities:	
Fuel / Pilot Gas	Min. 30psig Natural Gas /Propane 40-50 SCFH
Instrument Air	NA
Power	120 V / 60 Hz or Solar Power
Steam	NA
Purge Gas	

DESIGN DATA

27	Ambient Temperatures:		Noise Performance Requirements:	Under 85 dBA
28	Low, °F	-20	Structural Design Code:	
29	High, °F	120	Wind Design Code:	ASCE
30	Design Conditions: Pressure/Temperature			
31	Max. Relative Humidity, %	90	Pressure/Speed	100 mph
32	Elevation (ASL), ft		Category	
33	Area Classification:	Class I Div 2	Seismic Design Code:	
34	Electrical Design Code:	NEC	Location	

EQUIPMENT SPECIFICATION

35	Type:	☐ Elevated	☑ Enclosed	Equipment Design:		
36		☐ Above Ground		Component	Material / Size / Rating / Other	
37		☑ Stack	☑ Multiple Stack	Burner		
38		☐ Portable / Trailer		Burner Tip / Assist Gas Burner		
39				Burner Body		
40	Smokeless By:	☐ Steam	☐ Assist Air	Pilot		
41		☐ Gas Assist	☐ Staging	Pilot Tip		
42				Pilot Line(s)		
43	Stack:	☐ Self Supporting		Firebox / Stack		
44	Flare Burner:	☐ Non-Smokeless	☐ Smokeless ☐ Gas Assist	Shell		
45	Pilot:	☑ Intermittent	☐ Continuous	Piping		
46	Pilot Air Inspirator:	☐ Local	☐ Remote	Nozzles		
47	Pilot Flame Control:	☐ No	☑ Yes (Thermocouple)	Flanges		
48				Insulation		
49	Pilot Ignition:	☐ Flamefront Generator	☑ Inspirating Ignitor	Insulation Pins		
50		☐ Electronic	☑ Automatic ☐ Manual	Refractory		
51		☐ With Pilot Flame Control		Refractory Anchors		
52		☐ With Auto Pilot Re-Ignition		Ladders and Platforms		
53				Stack Sample Connections		
54	Pilot Ignition Backup:	☐ Manual	Specify: i.e Piezo-Electric	Sight Glass		
55		☐ Battery Pack		Other		

LEED FABRICATION

Environmental Control Equipment Data Sheet

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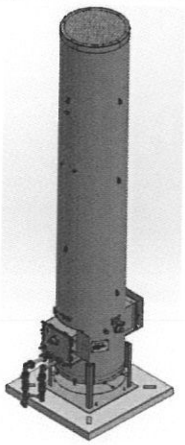
Project:		Date:	27 February 2014		
P.O. No.:	-	By:	JS		
RFQ No.:	-	Checked:	SG		
Ref. P&ID:	-	Approved:	MS		
Remarks:	-	Supplier:	LEED FABRICATION		
		Model No.:	L30-00XX		

Client:	
Site:	
Unit/Lease:	

EQUIPMENT SPECIFICATION

Flame Detection: ☐ Thermocouple ☑ Ionization Rod ☐ UV Scanner

General Configuration:



Auxiliary Equipment	
Valves	
Blowers	
Dampers	
Inlet KO / Liquid Seal	
Flame / Detonation Arrestor	
Instrumentation & Controls	
Solenoids / Shut-Off Valves	
Flow Meters	
Calorimeter	
Pressure Switches/Transmitters	
Thermocouples	
Temperature Switches/Transmitters	
BMS	
CEMS	
Other	

FABRICATION AND INSPECTION

Special requirements	☐ Skid Mounted ☑ Concrete Pad
	☐ Other
Inspection	☑ Vendor Standard
	☐ Other. Specify:
Material Certification	☑ Vendor Standard
	☐ MTR
	☐ Certificate of Compliance
	☐ Other (Specify):
NDE	☑ Vendor Standard
	☐ Radiography. Specify:
	☐ Ultrasonic. Specify:
	☐ Liquid Penetrant.
	☐ Magnetic Particles.
	☐ PMI. Specify:
	☐ Other. Specify:
Surface Preparation	☑ Vendor Standard
	☐ Other. Specify:
Paint System	☑ Vendor Standard
	☐ Other. Specify:
Finished Color	☑ Vendor Standard
	☐ Other. Specify:

Equipment Info	
Component	**Weight / Dimensions**
Burner	
Burner Assembly	
Stack	
Stack Assembly	
Pilot Tip	
Pilot Line(s)	
Stack Assembly	
Auxiliary Equipment	
Blowers	
Inlet KO / Liquid Seal	
Flame / Detonation Arrestor	
Skid	
Instrumentation & Controls	
BMS	
Control Panel	

Additional Notes:

LEED FABRICATION		Item/Tag No.:		Page	3	of	3
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Environmental Control Equipment Data Sheet				By:	JS		
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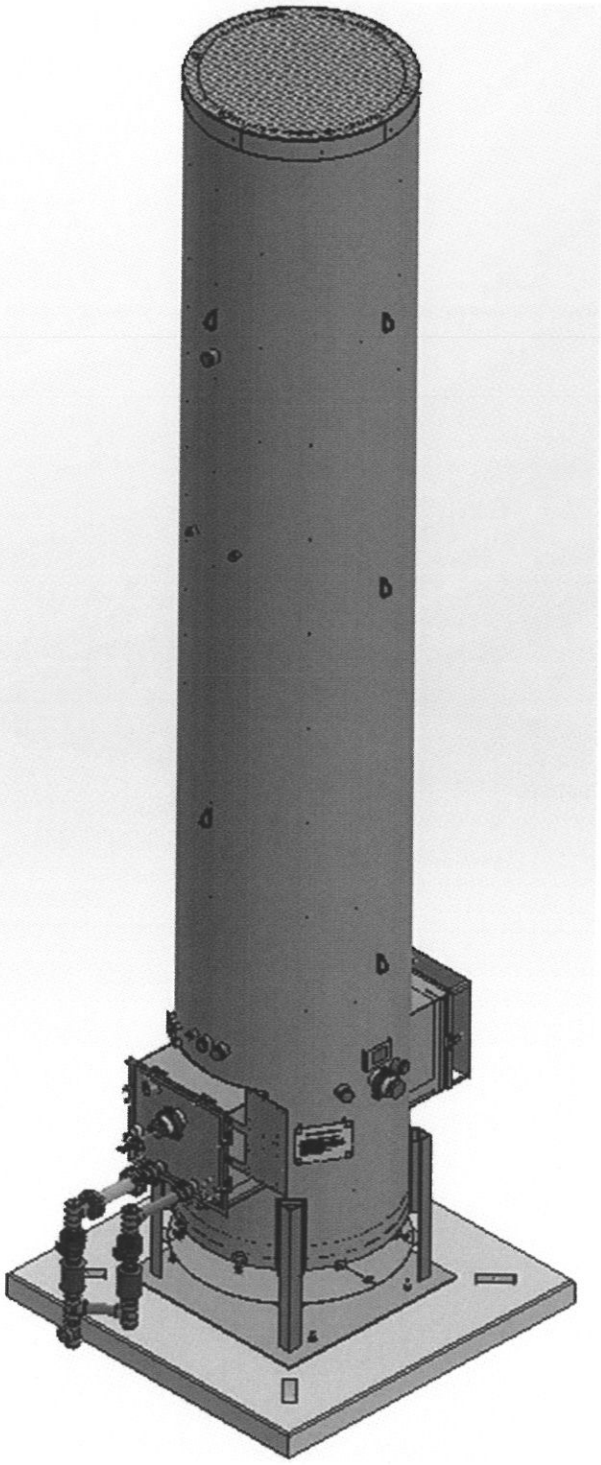
		RFQ No.:	-	Approved:	MS		
Client:		Ref. P&ID:	-				
Site:				Supplier:	LEED FABRICATION		
Unit/Lease:		Remarks:	-	Model No.:	L30-00XX		

GENERAL ARRANGEMENT



Enviromental Control Equipment Data Sheet

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Project:		Date:	27 February 2014		
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RFQ No.:	-	Checked:	SG		
Ref. P&ID:	-	Approved:	MS		
Remarks:	-	Supplier:	LEED FABRICATION		
		Model No.:	Dual Head Flare		

Client:
Site:
Unit/Lease:

GENERAL

1	Design Code:	NDE:	LEED Fabrication Standards
2	Service:	Customer Specs:	☐ Yes
3	Description: Dual Head Flare		☑ No

PROCESS DATA

	Gas Composition:	mol %
4	Methane	
5	Ethane	
6	Propane	
7	I-Butane	
8	n-Butane	
9	I-Pentane	
10	n-Pentane	
11	n-Hexane	
12	CO2	
13	N2	
14	Helium	
15	H_2O	
16	C7	
17	C8	
18	C9	
19	C10	
20	C11+	
21	TOTAL	
	Other Components:	**PPMV**
22	H2S	
23	Benzene	
24	Toluene	
25	E-Benzene	
26	Xylene	

Process Conditions:

Variable	Value	Units
Flow Rate	2.75 / 40	mmSCFD High Press. / mSCFD Low Press.
Pressure	100 / 16	psig High Press. / oz/in2 Low Press.
Temperature		°F
Molecular Weight		
Process/Waste Stream	☑ Gas	☐ Liquid

Detailed Process Description / Process Notes:

1. Turndown 10:1. Based on an expected normal operating rate indicated above
2. Gas mixture heating value estimated to be 1500 BTU/SCF
3. Actual gas composition varies by site
4. EPA NSPS 40 CFR Part 60 compliant
5. 98% DRE

Available Utilities:

Fuel / Pilot Gas	Natural Gas: 40 SCFH / Propane 30 SCFH @ 5-7 psig
Instrument Air	NA
Power	120 V / 60 Hz or Solar Power
Steam	NA
Purge Gas	NA

DESIGN DATA

27	Ambient Temperatures:		Noise Performance Requirements:	
28	Low, °F	-20	Structural Design Code:	
29	High, °F	120	Wind Design Code:	ASCE
30	Design Conditions: Pressure/Temperature			
31	Max. Relative Humidity, %	90	Pressure/Speed	100 mph
32	Elevation (ASL), ft		Category	
33	Area Classification:	Class I Div 2	Seismic Design Code:	
34	Electrical Design Code:	NEC	Location	

EQUIPMENT SPECIFICATION

35	Type:	☑ Elevated	☐ Enclosed	Equipment Design:		
36		☐ Above Ground			Component	Material / Size / Rating / Other
37		☑ Stack	☐ Multiple Stack	Burner		
38		☐ Portable / Trailer			Burner Tip / Assist Gas Burner	304/316 SS
39					Burner Body	Carbon Steel
40	Smokeless By:	☐ Steam	☐ Assist Air	Pilot		
41		☐ Gas Assist	☐ Staging		Pilot Tip	304/316 SS
42					Pilot Line(s)	Carbon Steel
43	Stack:	☑ Self Supporting		Firebox / Stack		
44	Flare Burner:	☐ Non-Smokeless	☑ Smokeless ☐ Gas Assist		Shell	NA
45	Pilot:	☑ Intermittent	☑ Continuous		Piping	Carbon Steel
46	Pilot Air Inspirator:	☑ Local	☐ Remote		Nozzles	Carbon Steel
47	Pilot Flame Control:	☐ No	☑ Yes (Thermocouple)		Flanges	Carbon Steel
48					Insulation	NA
49	Pilot Ignition:	☐ Flamefront Generator	☑ Inspirating Ignitor		Insulation Pins	NA
50		☐ Electronic	☑ Automatic ☐ Manual		Refractory	NA
51		☐ With Pilot Flame Control			Refractory Anchors	NA
52		☐ With Auto Pilot Re-Ignition			Ladders and Platforms	NA
53					Stack Sample Connections	NA
54	Pilot Ignition Backup:	☐ Manual	Specify: i.e Piezo-Electric		Sight Glass	NA
55		☐ Battery Pack			Other	

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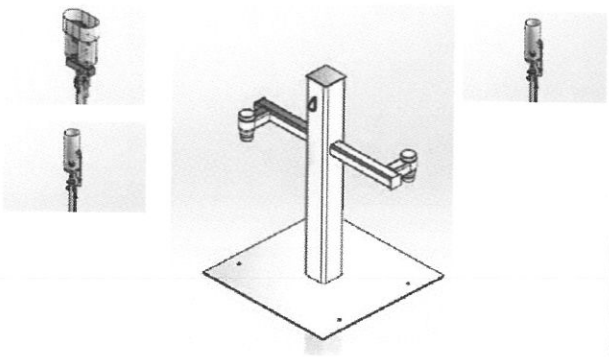
		RFQ No.:	-	Checked:	SG
		Ref. P&ID:	-	Approved:	MS
	Client:	Remarks:	-	Supplier:	LEED FABRICATION
	Site:			Model No.:	Dual Head Flare
	Unit/Lease:				

EQUIPMENT SPECIFICATION

56	Flame Detection:	☐ Thermocouple	☑ Ionization Rod	Auxiliary Equipment	
57		☐ UV Scanner		Valves	NA
58	General Configuration:			Blowers	NA
59				Dampers	NA
60				Inlet KO / Liquid Seal	NA
61				Flame / Detonation Arrestor	Yes
62				Instrumentation & Controls	
63				Solenoids / Shut-Off Valves	Check with Sales for available config.
64				Flow Meters	NA
65				Calorimeter	NA
66				Pressure Switches/Transmitters	NA
67				Thermocouples	Check with Sales for available config.
68				Temperature Switches/Transmitters	NA
69				BMS	Check with Sales for available config.
70				CEMS	NA
71				Other	NA
72					
73					
74					
75					



FABRICATION AND INSPECTION

76	Special requirements	☐ Skid Mounted	☑ Concrete Pad	Equipment Info	
77		☐ Other		Component	Weight / Dimensions
78				Burner	
79	Inspection	☑ Vendor Standard		Burner Assembly	
80		☐ Other. Specify:		Stack	
81	Material Certification	☑ Vendor Standard		Stack Assembly	8 " OD x 10 ' H
82		☐ MTR		Pilot Tip	
83		☐ Certificate of Compliance		Pilot Line(s)	
84		☐ Other (Specify):		Stack Assembly	
85	NDE	☑ Vendor Standard		Auxiliary Equipment	
86		☐ Radiography. Specify:		Blowers	
87		☐ Ultrasonic. Specify:		Inlet KO / Liquid Seal	
88		☐ Liquid Penetrant.		Flame / Detonation Arrestor	
89		☐ Magnetic Particles.		Skid	
90		☐ PMI. Specify:		Instrumentation & Controls	
91		☐ Other. Specify:		BMS	
92	Surface Preparation	☑ Vendor Standard		Control Panel	
93		☐ Other. Specify:			
94	Paint System	☑ Vendor Standard			
95		☐ Other. Specify:			
96	Finished Color	☑ Vendor Standard			
97		☐ Other. Specify:			
98					
99					

Additional Notes:

LEED FABRICATION	Item/Tag No.:		Page	3 of 3	
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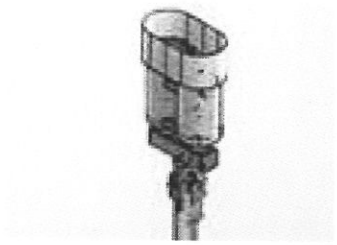
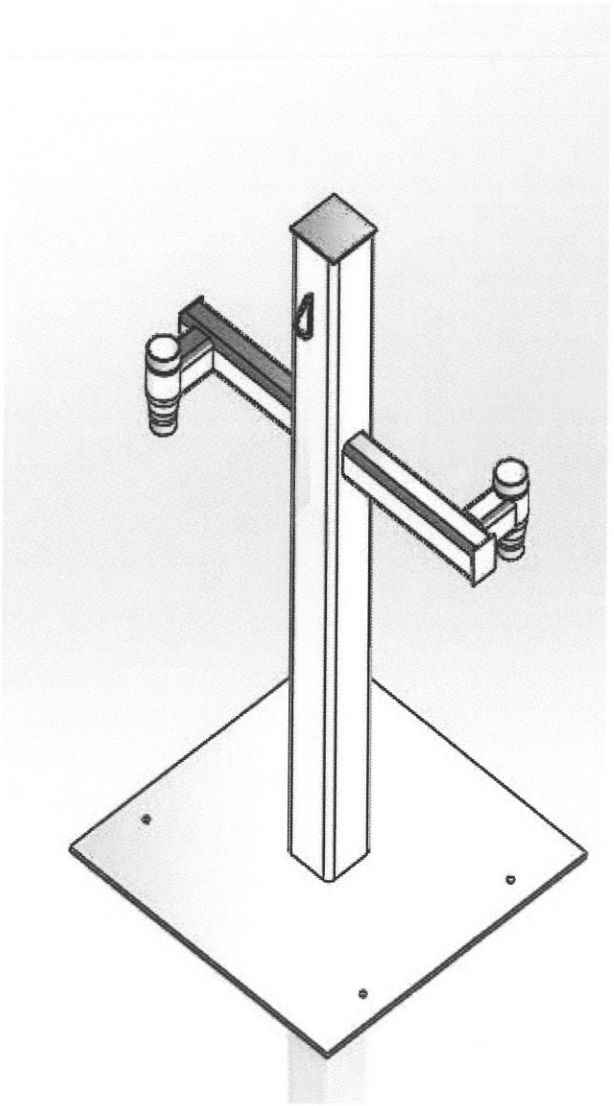
Environmental Control Equipment Data Sheet	P.O. No.:	-	By:	JS	
	RFQ No.:	-	Checked:	SG	
Client:	Ref. P&ID:	-	Approved:	MS	
Site:	Remarks:	-	Supplier:	LEED FABRICATION	
Unit/Lease:			Model No.:	Dual Head Flare	

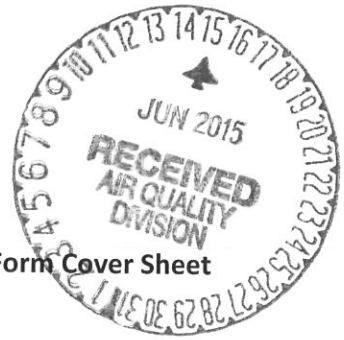
GENERAL ARRANGEMENT





High Pressure

Low Pressure



DEQ
WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

New Source Review Permit Application Form Cover Sheet

Is this a revision to an existing application?
Yes _____ **No** X

Previous Application #: _____

Date of Application: 6/15/2015

COMPANY INFORMATION:

Company Name: Peak Powder River Resources, LLC
Address: 1910 Main Avenue
City: Durango State: Colorado Zip Code: 81301
Country: USA Phone Number: (970) 247-1500

FACILITY INFORMATION:

Facility Name: Van Buggenum 1-2H
New Facility or Existing Facility: New
Facility Description: Oil and Gas Production Facility
Facility Class: Minor Operating Status: Operating
Facility Type: Production Site

For Oil & Gas Production Sites ONLY:
First Date of Production (FDOP)/Date of Modification: 3/24/2015
Single well or multiple well facility? Single
Does production at this facility contain H2S?* No
If yes, contact the Division.
API Number(s): 49-005-61581

NAICS Code: 2111 Oil and Gas Extraction

FACILITY LOCATION:

***Enter the facility location in either the latitude/longitude area or section/township/range area. Both are not required.**

Physical Address: _____
City: _____ Zip Code: _____
State: WY County: _____

OR

Latitude: 43.737071 Longitude: -105.837423 County: Campbell
Quarter Quarter: SE Quarter: SW
Section: 35 Township: 44N Range: 75W

For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)

CONTACT INFORMATION:

***Note that an Environmental AND NSR Permitting Contact is required for your application to be deemed complete by the agency.**

Title: Ms. First Name: Daneka
Last Name: Ewert
Company Name: Peak Powder River Resources, LLC
Job Title: Environmental Manager
Address: 1910 Main Avenue
City: Durango State: Colorado
Zip Code: 81301
Primary Phone No.: (307) 231-0755 E-mail: DEwert@colopeaks.com
Mobile Phone No.: _____ Fax No.: (970) 247-5424
Contact Type: Environmental contact Start Date: _____

***Name of the contact to whom the permit will be issued:** _____

Additional Contact Type (if needed): Environmental contact
Title: Ms. First Name: Daneka
Last Name: Ewert
Company Name: Peak Powder River Resources, LLC
Job Title: Environmental Manager
Address: 1910 Main Avenue
City: Durango State: Colorado
Zip Code: 81301
Primary Phone No.: (307) 231-0755 E-mail: DEwert@colopeaks.com
Mobile Phone No.: Fax No.: (970) 247-5424
Contact Type: Environmental contact Start Date:

FACILITY APPLICATION INFORMATION:

General Info:

Has the facility changed location or is it a new/ greenfield facility?	Yes
Has a Land Use Planning document been included in this application?	No
Is the facility located in a sage grouse core area?*	No
If the facility is in a sage grouse core area, what is the WER number?	

** For questions about sage grouse core area, contact WY Game & Fish Department.*

Federal Rules Applicability - Facility Level:

Prevention of Significant Deterioration (PSD):	No
Non-Attainment New Source Review:	No

Modeling Section:

Has the Air Quality Division been contacted to determine if modeling is required?	No
Is a modeling analysis part of this application?	No
Is the proposed project subject to Prevention of Significant Deterioration (PSD) requirements?	No
Has the Air Quality Division been notified to schedule a pre-application meeting?	No
Has a modeling protocol been submitted to and approved by the Air Quality Division?	No
Has the Air Quality Division received a Q/D analysis to submit to the respective FLMs to determine the need for an AQRV analysis?	No

Required Attachments:

Facility Map	☐
Process Flow Diagram	☑
Modeling Analysis (if applicable)	☐
Land Use Planning Document	☐
Detailed Project Description	☑
Emissions Calculations	☑

I, Daneka Ewert (Responsible Official (Printed Name)) Environmental Manager (Title)

an Official Representative of the Company, state that I have knowledge of the facts herein set forth and that the same are true and correct to the best of my knowledge and belief. I further certify that the operational information provided and emission rates listed on this application reflect the anticipated emissions due to the operation of this facility. The facility will operate in compliance with all applicable Wyoming Air Quality Standards and Regulations.

Signature: Cynthia Madson (ink) for Daneka Ewert

Date: June 12, 2012

Specific Emission Unit Attributes:

Separator/Treater

Company Equipment ID: 2-Phase Separator
Company Equipment Description: 2-Phase Separator

Operating Status: Operating
Initial Construction Commencement Date:
Initial Operation Commencement Date: 3/18/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Vessel: 2-Phase Separator Is Vessel Heated? No
Operating Temperature (F): 80
Operating Pressure (psig): 100

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000107

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: *OOOO*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): Not Affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): Not Affected

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: Not Affected

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Separator/Treater

Company Equipment ID: Treater
Company Equipment Description: Treater

Operating Status: Operating
Initial Construction Commencement Date:
Initial Operation Commencement Date: 3/18/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Vessel: Heater-Treater Is Vessel Heated? Yes
Operating Temperature (F): 130
Operating Pressure (psig): 30

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000107

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed BACT: _____

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant: _____

Proposed LAER: _____

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: *OOOO*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart: _____

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): Not Affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart: _____

Prevention of Significant Deterioration (PSD): Not Affected

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: Not Affected

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Oil Tanks
Company Equipment Description: 4 400-BBL Oil Tanks

Operating Status: Operating
Initial Construction Commencement Date:
Initial Operation Commencement Date: 3/18/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: Liquid
Description of Material Stored: 36 deg API oil

Capacity: 1600 Units: barrels
Maximum Throughput: 214 Units: barrels/day
Maximum Hourly Throughput: 9 Units: barrels/hr
Operating Pressure (psig): 0
Vapor Pressure of Material Stored (psig): 3.5
Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400312

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed BACT:

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed LAER:

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: *OOOO*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart:

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): Not Affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart:

Prevention of Significant Deterioration (PSD): Not Affected

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: Not Affected

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Storage Tank/Silo

Company Equipment ID: Water Tank
Company Equipment Description: 400-BBL Produced Water Tank

Operating Status: Operating
Initial Construction Commencement Date:
Initial Operation Commencement Date: 3/18/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Material Type: Liquid
Description of Material Stored: Produced Water

Capacity: 400 Units: barrels
Maximum Throughput: 200 Units: barrels/day
Maximum Hourly Throughput: 21 Units: barrels/hr
Operating Pressure (psig): 0
Vapor Pressure of Material Stored (psig): 0.178
Is Tank Heated?: No

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40400312

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed BACT:

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed LAER:

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: *OOOO*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart:

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): Not Affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart:

Prevention of Significant Deterioration (PSD): Not Affected

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: Not Affected

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Loading/Unloading/Dump

Company Equipment ID: Truckloading
Company Equipment Description: Truckloading

Operating Status: Operating
Initial Construction Commencement Date:
Initial Operation Commencement Date: 3/18/2014
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Material: Liquid
Material Description: Crude Oil

Maximum Annual Throughput: 78,110 Units: barrels/yr
Maximum Hourly Throughput: 180 Units: barrels/hr
Detailed Description of Loading/Unloading/Dump Source:
submerged loading, dedicated service from oil storage tanks to 180-BBL truck tank

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

40600132

Potential Operating Schedule: Provide the operating schedule for this emission unit.
Hours/day: 2
Hours/year: 434

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed BACT:

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed LAER:

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: *OOOO*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart:

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): Not Affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart:

Prevention of Significant Deterioration (PSD): Not Affected

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: Not Affected

These rules are found under WAQSR Chapter 6, Section 13.

Specific Emission Unit Attributes:

Fugitives

Company Equipment ID: Fugitives
Company Equipment Description: Fugitives

Operating Status: Operating
Initial Construction Commencement Date:
Initial Operation Commencement Date: 3/18/2015
Most Recent Construction/ Modification Commencement Date:

Most Recent Operation Commencement Date:

Select reason(s) for this emissions unit being included in this application (must be completed regardless of date of installation or modification):

Reason: Construction (Greenfield/New Facility)

If reason is ***Reconstruction*** or ***Temporary Permit*** or ***Other,*** please explain below:

Type of Fugitive Emission: Fugitive Leaks at O&G

SCC Codes: List all Source Classification Code(s) (SCC) that describe the process(es) performed by the emission source (e.g., 1-02-002-04).

31000101

Potential Operating Schedule: Provide the operating schedule for this emission unit.

Hours/day: 24
Hours/year: 8760

Control Equipment: No

If yes, please fill out and attach the appropriate Control Device and Release Point Information worksheets.

Best Available Control Technology (BACT): Was a BACT Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed BACT:

*If yes, attach BACT Analysis with this application.

Lowest Achievable Emission Rate (LAER): Was a LAER Analysis completed for this emission unit?

☐ Yes ☑ No

Pollutant:

Proposed LAER:

*If yes, attach LAER Analysis with this application.

Federal and State Rule Applicability:

New Source Performance Standards (NSPS): Subject, but exempt

New Source Performance Standard are listed under 40 CFR 60-Standards of Performance for New Stationary Sources.

NSPS Subpart: *OOOO*

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 61): Not Affected

National Emissions Standards for Hazardous Air Pollutants (NESHAP Part 61) are listed under 40 CFR 61. (These include asbestos, benzene, beryllium, mercury, and vinyl chloride).

Part 61 NESHAP Subpart:

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63): Not Affected

National Emission Standards for Hazardous Air Pollutants (NESHAP Part 63) standards are listed under 40 CFR 63

Part 63 NESHAP Subpart:

Prevention of Significant Deterioration (PSD): Not Affected

These rules are found under WAQSR Chapter 6, Section 4.

Non-Attainment New Source Review: Not Affected

These rules are found under WAQSR Chapter 6, Section 13.

Control Equipment:

Flare/Combustor

Manufacturer: LEED
Date Installed: 3/1/2015
Model Name and Number: L30-0011
Company Control Equipment ID:
Company Control Equipment Description: 48-IN by 25-FT Smokeless Combustor

Pollutant(s) Controlled:
☐ CO ☐ NOx ☐ Pb ☐ SO2 ☑ VOC ☐ PM
☐ PM (FIL) ☐ PM Condensible ☐ PM 10 (FIL) ☐ PM 2.5 (FIL) ☐ PM 10 ☐ PM 2.5
☐ Other

NOTE: The following fields require numeric values unless otherwise denoted with an asterisk*

Maximum Design Capacity (MMSCF/hr): 0.004
Minimum Design Capacity (MMSCF/hr): 0
Design Control Efficiency (%): 98
Capture Efficiency (%): 100
Operating Control Efficiency (%): 98
Flare Type:* Enclosed
Elevated Flare Type:* Non-Assisted
Ignition Device:* Yes
Flame Presence Sensor:* Yes
Inlet Gas Temp (F): 100
Flame Presence Type:* Thermocouple
Gas Flow Rate (acfm): 0.7
Outlet Gas Temp (F): 1000

☑ This is the only control equipment on this air contaminant source

If not, this control equipment is: ☐ Primary ☐ Secondary ☐ Parallel

List all other emission units that are also vented to this control equipment:* none

List all release point IDs associated with this control equipment:* none

Pollutant Emissions Form
(submit one for each emission unit)

OIL TANKS

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	5.56	1.043935	lb/ton of production	1.269406	5.56	Tanks Program
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	0.09	0.016898	lb/ton of production	0.020548	0.09	Tanks Program
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

SHANNON oil weighs 6.494 LB/GAL (42 GAL/BBL) = 272.75 LB/BBL
Projected oil production = 78,110 BBL
272.75 LB/BBL (78,110 BBL) (TON/2000 LB) = 10,652 TONS oil/yr.
LB/TON of production = X TON / 10,652 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

BURNER

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)	0.28	0.052572	lb/ton of production	0.063927	0.28	AP-42
6.)	Carbon monoxide (CO)	0.23	0.043184	lb/ton of production	0.052511	0.23	AP-42
7.)	Volatile organic compounds (VOC)						
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)						
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

SHANNON oil weighs 6.494 LB/GAL (42 GAL/BBL) = 272.75 LB/BBL
Projected oil production = 78,110 BBL
272.75 LB/BBL (78,110 BBL) (TON/2000 LB) = 10,652 TONS oil/yr.
LB/TON of production = X TON / 10,652 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

FUGITIVES

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	0.14	0.026286	lb/ton of production	0.031963	0.14	AP-42
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	0.10	0.018776	lb/ton of production	0.022831	0.10	AP-42
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

SHANNON oil weighs 6.494 LB/GAL (42 GAL/BBL) = 272.75 LB/BBL
Projected oil production = 78,110 BBL
272.75 LB/BBL (78,110 BBL) (TON/2000 LB) = 10,652 TONS oil/yr.
LB/TON of production = X TON / 10,652 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Pollutant Emissions Form
(submit one for each emission unit)

Truck Loading

Emissions Information- The following tables request information needed to determine the applicable requirements and the compliance status of this emission unit with those requirements.

			Efficiency Standards				
		Pre-Controlled Potential Emissions (tons/yr)	Potential to Emit (PTE)	Units	Potential to Emit (lbs/hr)	Potential to Emit (tons/yr)	Basis for Determination
Criteria Pollutants:							
1.)	Particulate emissions (PE/PM) (formerly particulate matter, PM)						
2.)	PM #10 microns in diameter (PE/PM10)						
3.)	PM #2.5 microns in diameter (PE/PM2.5)						
4.)	Sulfur dioxide (SO2)						
5.)	Nitrogen Oxides (NOx)						
6.)	Carbon monoxide (CO)						
7.)	Volatile organic compounds (VOC)	0.98	0.184003	lb/ton of production	0.223744	0.98	AP-42
8.)	Lead (Pb)						
9.)	Total Hazardous Air Pollutants (HAPs)	0.01	0.001878	lb/ton of production	0.002283	0.01	AP-42
10.)	Fluoride (F)						
11.)	Hydrogen Sulfide (H2S)						
12.)	Mercury (Hg)						
13.)	Total Reduced Sulfur (TRS)						
14.)	Sulfuric Acid Mist (SAM)						

Provide your calculations as an attachment and explain how all process variables and emissions factors were selected.

SHANNON oil weighs 6.494 LB/GAL (42 GAL/BBL) = 272.75 LB/BBL
Projected oil production = 78,110 BBL
272.75 LB/BBL (78,110 BBL) (TON/2000 LB) = 10,652 TONS oil/yr.
LB/TON of production = X TON / 10,652 TONS (2000 LB/TON)
LB/HR = X TONS/8760 HR (2000 LB/TON)

Complete the table below for ***each*** release point. Please include release point information for each emission unit. Multiple attachments may be necessary. A release point is a point at which emissions from an emission unit are released into the ambient (outside)air. List each individual release point on a separate pair of lines (release point ID and description). ***For longitude and latitude, use NAD 83/WGS84 datum and 5 digits after the decimal (i.e. 41.12345, -107.56789)***

Stack Release Point Information		
Company Release Point ID:	Release Point Type:	Vertical
OIL TANKS - WITH COMBUSTOR	Release Point Latitude:	43.737071
	Release Point Longitude:	-105.837423
Company Release Point Description:	Base Elevation (ft):	5303
vapors from oil tanks routed to 48-IN by 25-FT combustor	Stack Height (ft):	20
	Stack Diameter (ft):	4
	Exit Gas Velocity (ft/s):	0.01
	Exit Gas Temp (F):	1000
	Exit Gas Flow Rate (acfm):	0.7
Company Release Point ID:	Release Point Type:	Horizontal
OIL TANKS - NO CONTROL	Release Point Latitude:	43.737071
	Release Point Longitude:	-105.837423
Company Release Point Description:	Base Elevation (ft):	5303
vapors exit 4-inch tank vent pipe	Stack Height (ft):	20
	Stack Diameter (ft):	0.83
	Exit Gas Velocity (ft/s):	0.01
	Exit Gas Temp (F):	1000
	Exit Gas Flow Rate (acfm):	0.7
Company Release Point ID:	Release Point Type:	Vertical
0.5 MMBTU/HR TREATER BURNER	Release Point Latitude:	43.737071
	Release Point Longitude:	-105.837423
Company Release Point Description:	Base Elevation (ft):	5303
fumes from the combustion of natural gas exiting the burner stack	Stack Height (ft):	20
	Stack Diameter (ft):	0.83
	Exit Gas Velocity (ft/s):	0.01
	Exit Gas Temp (F):	1000
	Exit Gas Flow Rate (acfm):	6.2
Company Release Point ID:	Release Point Type:	Horizontal
TRUCK LOADING	Release Point Latitude:	43.737071
	Release Point Longitude:	-105.837423
Company Release Point Description:	Base Elevation (ft):	5303
vapors displaced from truck tank as oil is loaded into tank	Stack Height (ft):	12
	Stack Diameter (ft):	0.83
	Exit Gas Velocity (ft/s):	0.01
	Exit Gas Temp (F):	50
	Exit Gas Flow Rate (acfm):	16.83

Tanks: ACFM = (MSCF/DAY) (1000 SCF/MCF) (DAY/24 HR) (HR/60 MIN)

Burners: ACFM = (MMBTU/HR)(HR/60 MIN)(SCF/BTU)(10^6 BTU/MMBTU)

Truckloading: (180 BBL/HR)(HR/60 MIN)(5.61 CF/BBL) = 16.83 ACFM

Company Release Point ID:	Release Point Type:
	Release Point Latitude:
	Release Point Longitude:
Company Release Point Description:	Base Elevation (ft):
	Stack Height (ft):
	Stack Diameter (ft):
	Exit Gas Velocity (ft/s):
	Exit Gas Temp (F):
	Exit Gas Flow Rate (acfm):
Company Release Point ID:	Release Point Latitude: 43.737071
FUGITIVES	Release Point Longitude: -105.837423
	Release Height (ft): 4
Company Release Point Description:	
Potential leaks	
Company Release Point ID:	Release Point Latitude:
	Release Point Longitude:
	Release Height (ft):
Company Release Point Description:	
Company Release Point ID:	Release Point Latitude:
	Release Point Longitude:
	Release Height (ft):
Company Release Point Description:	